FISHES OF GUAM, HAWAII, SAMOA, AND TAHITI

BY

HENRY W. FOWLER

BERNICE P. BISHOP MUSEUM

BULLETIN 22

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HENRY W. FOWLER, OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA, SERVED AS BISHOP MUSEUM FELLOW IN YALE UNIVERSITY FOR THE YEAR 1922-23. THROUGH THE COURTESY OF THE ACADEMY, MR. FOWLER IS CONTINUING HIS STUDY OF THE FISHES COLLECTED BY EXPEDITIONS UNDER THE AUSPICES OF THE BERNICE P. BISHOP MUSEUM.

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Fishes of Guam, Hawaii, Samoa, and Tahiti

By Henry W. Fowler

Among the scientific results of field work conducted in the Marianas Islands by Hans G. Hornbostel of the Bishop Museum staff, is a collection of fishes comprising 158 species. This material, together with that obtained by Alvin Seale[1] in 1900, gives the Museum a fairly representative collection from that region. The specimens recently received from Guam are accompanied by unusually complete data and their interest increased by color sketches from the brush of Mrs. Gertrude Hornbostel.

In addition to the species from Guam, it has been considered desirable to record for purposes of comparative study, forty-five species from Hawaii, thirty-six species from Samoa, and fourteen species from Tahiti, belonging to collections recently examined.

New species in the list from Hawaii have been recorded elsewhere[2] and it is proposed to discuss the distribution and relationship of these and of other Pacific fishes in a more comprehensive work.[3]

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[1] Seale, Alvin, Report of a mission to Guam: B. P. Bishop Mus. Occ. Papers, vol. 1, no. 3, pp. 17-128, 1900.

[2] Fowler, Henry W., New or little-known Hawaiian fishes: B. P. Bishop Mus. Occ. Papers, vol. viii, No. 7, pp. 1-20, 1923.

[3] Fowler, Henry W., The fishes of Oceania: B. P. Bishop Mus. Bull. in preparation.

FISHES FROM GUAM

EULAMIIDAE

Eulamia melanopterus (Quoy and Gaimard). HALMI

One example. Head 90 mm. long, and parts of fins showing black tips. July 29, 1923. Reaches 1830 mm.

ELOPIDAE

Megalops cyprinoides (Broussonet).

Two, 242 and 260 mm.

ALBULIDAE

Albula vulpes (Linné). AGUA

Five, 100 to 111 mm. Bright silvery-white generally, with only faint longitudinal lines on back. July 26, 1923. Reaches 1220 mm.

DUSSUMIERIIDAE

Stolephorus delicatulus (Bennett). ALETSES

Seventeen, 35 to 47 mm. July 27, 1923. Reaches 101 mm.

SYNODONTIDAE

Synodus japonicus (Houttuyn). PEPUPU

Nine, 151 to 305 mm. July 6, 1923.

Saurida gracilis (Quoy and Gaimard).

One, 90 mm. July 6, 1923.

ANGUILLIDAE

Anguilla mauritiana Bennett. HASULE

One, 148 mm. July 27, 1923. Dorsal origin slightly nearer gill-opening than vent.

MORINGUIDAE

Moringua javanica (Kaup). ULU-TASI

Three, 166 to 296 mm. July 24, 1923. Head contained 11 7/8 to 12 3/4 times in length. Reaches 305 mm.

ECHELIDAE

Muraenichthys macropterus Bleeker. HAGMAN

Two, 153 to 225 mm. July 18, 1923. Dorsal origin nearer gill-opening than vent. In alcohol uniform pale brown, with some very fine dusky-brown dots on head above and upper side of back. Iris and pharynx pale yellowish. Reaches 2440 mm.

OPHICHTHIIDAE

Myrichthys colubrinus (Pallas). HAGMAN-LISADSO

Four, 356 to 485 mm. July 22, 1923. Reaches 915 mm.

Myrichthys maculosus Cuvier. HAGMAN-LISADSO

Two, 210 to 470 mm. July 29, 1923. Reaches 610 mm.

MURAENIDAE

Echidna nebulosa (Ahl). HAGMAN-LISADSO

One, 265 mm. July 29, 1923. Reaches 610 mm.

Lycodontis picta (Ahl). HAGMAN

One, 225 mm. July 8, 1923.

Lycodontis undulata (Lacépède). HAGMAN-PADEPADA

Nine, 177 to 695 mm. July 13 and 26, 1923.

Head and trunk combined slightly less than trunk and tail; head 15 to caudal base; depth 2 1/2 in head; snout 9 in head; eye 1 3/5 in snout; gape 4 in head. Two rows of teeth below eye; row of three large depressible fangs medianly above, followed by single row of short, roundly blunt teeth.

Color very pale or light brown in alcohol, uniform on trunk, tail and most of head, except for scattered minute dots of dusky on snout, interorbital, and cranium. Pores along face of each jaw also dusky. Edge of dorsal and anal narrowly and conspicuously milk-white. This is the largest example and interesting as an albino.

Reaches 2440 mm.

Uropterygius concolor Rüppell. ULU-TASI

Two, 110 to 114 mm. July 4, 1923. Reaches 305 mm.

Uropterygius marmoratus (Lacépède). TITOHGE

One, 123 mm. July 27, 1923. Rather dark, scarcely clouded darker or with fine dusky mottling. Reaches 457 mm.

CLARIIDAE

Clarias fuscus (Lacépède).

One, 265 mm. Dorsal rays 61, anal 50. Introduced.

BELONIDAE

Belone platyura Bennett. AMAKO
Four, 348 to 420 mm. July 24, 1923. Reaches 1015 mm.

Strongylura indica (Le Sueur).
One, 185 mm. July 24, 1923. Beak 1 3/4 in total head length. Upper teeth inclined forward. Dorsal rays 11, 22.

HEMIRAMPHIDAE

Hemiramphus erythrorinchus Le Sueur. ANKUT
Thirteen, 60 to 290 mm. July 8, 1923. Anal rays 11, 12.

PLEURONECTIDAE

Platophrys pantherinus (Rüppell). TAMPAT
Three, 90 to 98 mm. July 6, 1923. Anal rays 68 to 71. Reaches 331 mm.

HOLOCENTRIDAE

Myripristis murdjan (Forskål). SAGUNILONG, SAGSAG
One. July 30, 1923. Reaches 305 mm.

Myripristis adustus Bleeker. SAGAMILUNG, SAGSAG
One, 108 mm. Four said to be in Bishop Museum. July 18, 1923. Reaches 305 mm.

Myripristis multiradiatus Günther. GA-DODAG, SAINA-N-DODAG
Four, 74 to 78 mm. July 18, 1923. Reaches 305 mm.

Holocentrus diadema Lacépède. SAGSESEUG, SAGSAG
Two, 92 to 102 mm. July 16, 1923.

Holocentrus erythraeus Günther. SAGMUTSUT, SAGSAG
Five, 94 to 105 mm. July 26, 1923. Reaches 305 mm.

Holocentrus lacteoguttatus Valenciennes.
One, 75 mm. July 16, 1923. Black blotch submarginally on first two membranes of spinous dorsal, others with only posterior gray blotch; medially white blotch along each membrane and on posterior membranes dusky, last quite dark.

Holocentrus sammara (Forskål). TSALAG
Six, 115 to 150 mm. July 3, 1923. Reaches 305 mm.

AULOSTOMIDAE

Aulostomus chinensis (Linné).

Two, 160 to 258 mm.

FISTULARIIDAE

Fistularia petimba Lacépède. BEDSAG

Two, 322 to 845 mm., without caudal filament. July 15, 1923. Skin smooth to touch. Median keel down back distinct before and behind dorsal, but not separated into scutes. Reaches 1220 mm.

SYNGNATHIDAE

Gastrotokeus biaculeatus (Bloch). HILITAI-TASI

Four, 192 to 232 mm. July 16, 1923, and April, 1924. Reaches 305 mm.

Corythoichthys mataafae Jordan and Seale. HILITSI-TASI

Three, 40 to 55 mm. July 2, 1923.

Corythoichthys flavofasciatus Rüppell. HILITSI-TASI

Five, 125 to 135 mm. July 18, 1923, and April, 1924. All show the pale or whitish snout, though finely spotted with blackish.

SPHYRAENIDAE

Sphyraena picuda (Schneider). ALU

Two, 124 to 158 mm. July 23, 1923. Maxillary reaches opposite hind nostril. Scales 78 to 80 in lateral line. Spinous dorsal origin slightly before depressed pectoral tip. About seven or more dark ring-like saddles along back.

MUGILIDAE

Mugil dussumieri Valenciennes.

Six, 66 to 190 mm. July 11, 1923.

POLYNEMIDAE

Polydactylus sexfilis (Valenciennes).

Two, 240 mm. Pectoral filaments 6.

CARANGIDAE

Scomberoides sancti-petri (Cuvier). HAGI

Three, 80 to 87 mm. July 26, 1923. Depth 3 2/5 to 3 1/2 times in length to caudal base.

Caranx ignobilis (Forskål). TARAKITO

Two, 110 to 112 mm. Nine in Bishop Museum. July 5, 1923. Breast partly scaly. No dark opercular spot. Pectoral and ventral yellow.

Up to 75 mm. called *ee,* 75 mm. to 610 mm., *tarakito,* above 610 mm., *mamulan.*

Carangoides ferdau (Forskål). TARAKITO

One, 235 mm. July 5, 1923. Nine in Bishop Museum. Head 3 3/5; depth, 2 3/5; D. VI-I, 31, 1; A. II-I, 26, 1; scales 98+50, of which about 28 bony keeled; snout 3 1/10 in head; eye 3 7/8; maxillary 2 1/2; interorbital 3. Gill-rakers 9+20. Pectoral three in combined head and trunk; soft dorsal lobe 2 3/4; soft anal lobe 3 3/5. No dark opercular spot. Back olive-gray, silvery to white on sides and below. Soft dorsal and anal lobes dusky. Caudal olivaceous. Pectoral pale yellowish.

Blepharis ciliaris (Bloch).

One, 97 mm.

Trachinotus ovatus (Linné). PALUMETA

Four, 52 to 62 mm. July 18, 1923.

CHEILODIPTERIDAE

Apogonichthys auritus (Valenciennes). ATUT-TASI, FOMHO, FOHMO

Two, 62 to 65 mm. July 19 and 27, 1923. Reaches 102 mm.

Apogonichthys perdix Bleeker. FOHMO-APAKA, FOMHO-APAKA

One, 50 mm. July 27, 1923. Palatine teeth present.

Amia novemfasciata (Cuvier).

Three, 31 to 44 mm. July 3, 1923. Fins all orange, black stripes very distinct.

Amia frenata (Valenciennes).

Two, 69 to 81 mm.

Synagrops argyrea (Gilbert and Cramer).

One example.

KUHLIIDAE

Kuhlia rupestris (Lacépède). NUFU

Two, 137 to 182 mm. Three in Bishop Museum. July 3, 1923.

SERRANIDAE

Epinephelus maculatus (Bloch).
One, 155 mm.

Epinephelus merra Bloch. GADDAE, GADAO
Three, 135 to 160 mm. July 6 and 29, 1923.

Pharopteryx nigricans Rüppell.
Two, 112 and 128 mm. The figure of *Pharopteryx melas* by Jordan and Seale[4] shows the membranes of the spinous dorsal intact and terminal between the tips of the dorsal spines. In the specimens of the present species these membranes are very deeply notched, reaching at least half way in the depth of the spine following.

Grammistes sexlineatus (Thunberg). SALI
One, 155 mm. July 20, 1923.

LUTJANIDAE

Lutjanus kasmira (Forskål). SALAGAI
Three, 55 to 113 mm. July 6, 1923. Reaches 228 mm.

Lutjanus monostigma (Cuvier). KAKAKA
One, 230 mm. July 25, 1923. Reaches 610 mm.

Lutjanus marginatus (Cuvier). BUA
Four, 178 to 220 mm. July 16, 1923. Reaches 305 mm.

HAEMULIDAE

Caesio tile Valenciennes.
Nine, 80 to 96 mm. Most with sides and lower region blushed pale purple in alcohol.

Plectorhinchus diagramma (Lacépède). SIHIG
Five, 40 to 406 mm. July 8, 1923. These have but three blackish longitudinal stripes along back and black blotch at front of spinous dorsal, otherwise white.

Scolopsis cancellatus (Cuvier). SIHIG
Three, 137 to 146 mm. July 3, 1923. Reaches 203 mm. Differs slightly from Bleeker's figure of *Scolopsides cancellatus*[5] in the membranes of first two dorsal spines blackish and pectoral axil dusky. The dark longitudinal bands on the back are broken, much as he indicates.

[4] Bureau of Fisheries, Bull. 25, Pl. 38, fig. 3, 1905.
[5] Atlas Ichth., 8, Pl. (31) 319, fig. 2, 1876-77.

SPARIDAE

Pentapus aurolineatus (Lacépède). AAGA, SALAGEI

Four, 100 to 204 mm. July 6, 1923. Reaches 305 mm.

Lethrinus harak (Forskål). MAFUTI

One, 183 mm. July 8, 1923. Three in the Bishop Museum. Reaches 915 mm. When full grown called *lililug*.

Lethrinus moensii Bleeker. MAFUTI

Two, 120 and 207 mm. July 8, 1923. Reaches 915 mm. Three in Bishop Museum.

GERRIDAE

Gerres gigas Günther. GUAGUAS

Three, 216 to 232 mm. July 13, 1923. Reaches 752 mm. Cheek with three rows of scales. Color when fresh bright silvery-white, back slightly pale olive.

LEIOGNATHIDAE

Leiognathus edentulus (Bloch). KADSU

One, 150 mm. July 20, 1923. Reaches 203 mm. Ascends rivers to lay eggs.

MULLIDAE

Mulloides samoensis Günther. SALMONETE

One, 137 mm. July 4, 1923. Reaches 457 mm. Gill-rakers 20 on lower branch of first arch. When small called *tiau*.

Upeneus chryserydros (Lacépède). SALMONETE-U-LAGO

One, 277 mm. July 28, 1923. Reaches 610 mm.

Upeneus multifasciatus (Quoy and Gaimard).

Three, 198 to 203 mm.

Upeneus barberinus (Lacépède). TIAU-ATSE

Two, 146 to 150 mm. July 9, 1923. Reaches 610 mm. Dark band from snout to eye, then along upper front course of lateral line, but sloping above and parallel with back profile below soft dorsal.

CIRRHITIDAE

Paracirrhites polystictus (Günther). ALADDO

One, 225 mm. July 26, 1923. Reaches 610 mm. Agrees with Gunther's figure of *Cirrhites polystictus* except that the lower side of the

body shows seven close-set longitudinal rows of dark spots, instead of four. The spot below the posterior dorsal spines is very light pink, nearly flesh-color.

Paracirrhites forsteri (Schneider).
One, 146 mm.

Cirrhitus marmoratus (Lacépède). PALAGSI
One, July 9, 1923. Reaches 305 mm.

SCORPAENIDAE

Sebastapistes tristis (Klunzinger). NUFU
Four, 38 to 61 mm. July 2, 1923. Mandible whitish, with five transverse deep brown bands.

Sebastopsis guamensis (Quoy and Gaimard).
One, 33 mm. April, 1924. No palatine teeth.

Scorpaenopsis gibbosa (Schneider). NUFU
Three, 95 to 114 mm. July 3, 1923.

Pterois volitans (Linné). NUFU PABO
One, 112 mm. February 14, 1924. Caught in lagoon, in 127 mm. of water.

Pterois antennatus (Bloch). NUFU PABO
Two, 120 to 163 mm. July 4, 1923. Reaches 610 mm.

Synanceja verrucosa Schneider. NUFU MALULASA
One, 250 mm. July 29, 1923. Reaches 305 mm.

PLATACIDAE

Platax orbicularis (Forskål).
Five, 62 to 129 mm. Dorsal fin with five spines and 35 to 40 rays. Scales 24 or 25 above lateral line.

CHAETODONTIDAE

Chaetodon setifer Bloch. ABABANG
Three, 50 to 98 mm. July 4, 1923. Reaches 152 mm.
The smaller examples do not show any soft dorsal filament, though with large black ocellated spot. Also black band from below eye not extending posteriorly in its boundary beyond preopercle ridge.

Chaetodon lunula (Lacépède). ABABANG
Seven, 28 to 140 mm. July 4, 24 and 30, 1923. Reaches 202 mm.

Chaetodon unimaculatus Bloch. ABABANG

One, 53 mm. July 4, 1923. Reaches 152 mm.

Chaetodon trifasciatus Mungo Park. ABABANG MATTINGAN

One, 99 mm. July 30, 1923. Reaches 151 mm.

Chaetodon ephippium Cuvier. ABABANG

Five, 70 to 144 mm. July 4, 1923. Reaches 150 mm.

Chaetodon pelewensis Kner.

One, 70 mm. Differs from Gunther's figure in the trunk more completely spotted with brown. The spots appear in rows, slightly undulate or inclined longitudinally; the upper, upward and lower, of which all smaller, curving slightly downward. Traces of about six dark streaks on posterior half of trunk, though these slope slightly forward from vertical on left side of body, while on the right they appear as at least two dark streaks parallel with soft dorsal base. In other respects the fundamental color-pattern obtains.

ZANCLIDAE

Zanclus canescens (Linné). AGUAS-PAGDSO, ABABANG

Eight, 64 to 160 mm. July 2, 1923.

ACANTHURIDAE

Hepatus aliala (Lesson).

One, 139 mm.

Hepatus leucopareius (Jenkins). GUAGNAS

Head 2 2/5 to 2 1/2; depth 1 2/3 to 1 4/5; D. IX, 25 or 26; A. III, 24; snout 2 to 2 1/5 in head; eye 2 2/5 to 2 2/3; maxillary 3 1/2 to 4; interorbital 3 1/4 to 3 1/3.

Body strongly compressed, deeply ovoid, deepest at anal origin. Caudal peduncle compressed, least depth 2 4/5 to 3 in head. Head width 2 1/5 to 2 1/6 in its length. Snout compressed, with half its length. Eye with front pupil edge about midway in head length; diameter 1 1/5 to 1 1/4 in snout, greater than interorbital. Mouth small, terminal. Teeth compressed, lobate, edges crenate all around. Nostrils close together, close before eye. Interorbital convex. Gill-opening 1 1/2 in head. Scales minute. Lateral line complete, parallel with profile of back. Second dorsal spine 2 1/3 to 2 2/3 in head; second dorsal ray 2 to 2 1/8; third anal spine 2 2/5 to 2 2/3; second anal ray 2 1/5 to 2 2/3; caudal truncate, 1 1/4 to 1 1/3; pectoral 1 1/5 to 1 1/4; ventral 1 4/5 to 2 1/5.

General color in alcohol bistre, with mouse-gray tint on breast, belly and lower surface of head. Teeth whitish. Dorsals and anals dusky. Caudal pale to whitish basally, blackish terminally with narrow white edge behind.

Four, 31 to 33 mm. July 8 and 13, 1923.

Hepatus lineatus (Linné). HIDSUG

Three, 118 to 202 mm. July 9, 1923. Reaches 355 mm.

Hepatus guttatus (Schneider).
Three, 98 to 158 mm.

Hepatus triostegus (Linné). POLONON-LAGO
Two, 103 mm. July 28, 1923.

Ctenochaetus strigosus (Bennett). HUGUPAU
Three, 132 to 233 mm. July 12, 1923. Reaches 457 mm.

Acanthurus unicornis (Forskål). GUASSA, HANGUM
Three, 75 to 223 mm. July 4, 8 and 16, 1923. Reaches 772 mm. The smaller examples agree in many ways with Gunther's figure of *Naseus unicornis*[6] in general appearance. My example has the entire head and trunk with parallel vertical striae, though the dorsals largely as in Günther's figure. There are no dark spots on the back now.

Acanthurus incipiens Jenkins. GUASSA
One, 133 mm. July 2, 1923. Reaches 305 mm.

Acanthurus lituratus Schneider. HANGUN
Four, 148 to 160 mm. June 30 and July 1 and 4, 1923. When full grown 458 mm., then called *tataga.*

Acanthurus metoprosophron (Jenkins). GUASA
Eight, 40 to 75 mm. July 8, 1923. In all, though young, the dark longitudinal bands are present on the dorsals, especially the spinous fin, as in Jenkins' figure. Reaches 305 mm.

SIGANIDAE

Siganus marmoratus (Quoy and Gaimard). SEEDSON
Thirteen, 50 to 126 mm. July 8, 1923. Reaches 305 mm. Called *maniahak* just after hatching; when beginning to eat and changing color, *daggi,* 76 mm. or more in size, called *seedson.*

Siganus fuscescens (Houttuyn).
Three, 129 to 150 mm.

Siganus sutor (Valenciennes). FOMHO, FOHMO
Three, 49 to 115 mm. July 16, 1923.

POMACENTRIDAE

Amphiprion sebae (Bleeker).
Two, 26 and 27 mm. July 19 and 30, 1923. Reaches 152 mm.

[6] Journal des Museum Godeffroy, Bd. II, heft 9, pl. 78, fig. D, 1875.

Amphiprion ephippium (Bloch). GA-DADAG, SAINA-A-DADAG
One, 35 mm. July 18, 1923. Reaches 76 mm.

Amphiprion melanopus (Bleeker). SAINAN-DODAG, GA-DODAG
One, 60 mm. July 23, 1923. Reaches 101 mm.

Dascyllus aruanus (Linné). FOMHO, FOHMO
Six, 40 to 56 mm. July 3, 1923. Reaches 76 mm.

Chromis caeruleus (Cuvier). FOMHO, FOHMO
Thirty-four, 19 to 61 mm. July 19, 1923. Reaches 76 mm.

Pomacentrus pavo (Bloch). FOMHO, FOHMO
One, 22 mm. July 19, 1923. Reaches 77 mm.

Pomacentrus lividus (Schneider). FOMHO, FOHMO
One, 80 mm. July 2, 1923. Reaches 76 mm. No black spot at bases of last dorsal rays.

Abudefduf sordidus (Forskål). DODDO
One, 52 mm. July 18, 1923. Reaches 203 mm.

Abudefduf septemfasciatus (Cuvier). DODDO
Two, 48 and 141 mm. July 18, 1923. Reaches 203 mm. Young with black saddle in last transverse band on caudal peduncle above.

Abudefduf brownriggii (J. W. Bennett). FOMHO, FOHMO
Six, 25 to 61 mm. July 2 and 27, 1923. Reaches 101 mm. All with blue line close along lower eye edge.

LABRIDAE

Hemigymnus melapterus (Bloch).
One, 133 mm.

Stethojulis axillaris (Quoy and Gaimard). AAGA
Seven, 63 to 100 mm. July 12, 1923. Of these, two are females or the *albovittatus* form.

Stethojulis strigiventer (Bennett). AAGA
Three, 59 to 68 mm. July 10, 1923. Reaches 101 mm.

Coris pulcherrima (Günther). AAGA
One, 275 mm. July 28, 1923. Reaches 305 mm.

Coris flavovittata (Bennett). GA-DODAG, SAINAN DODAG
One, 25 mm. July 30, 1923. Five black parallel longitudinal bands, of which one extends from snout through eye.

Coris greenovii (Bennett). AAGA-MATTINGAN

One, 60 mm. July 4, 1923. Reaches 152 mm. Brilliant red. Differs from Jordan and Evermann's figure in that the pectoral and ventral both are bright red and very little tint of purplish behind last light blotch on upper surface of caudal peduncle.

Cheilio inermis (Forskål).

Two, 227 and 270 mm.

Halichoeres opercularis (Günther). AAGA

One, 73 mm. July 29, 1923. Reaches 153 mm.

Halichoeres trimaculatus (Quoy and Gaimard). AAGA

Five, 66 to 117 mm. July 11, 1923.

Platyglossus vicinus (Günther).

One, 132 mm.

Thalassoma trilobata (Lacépède). LALATSA-MAMATI

One, 182 mm. July 26, 1923. Reaches 457 mm.

Cheilinus undulatus (Rüppell). TANGISUN

Only scales and photograph. Four in the Bishop Museum. July 22, 1923. Reaches 1830 mm. Scales show 9 to 11 basal radiating striae.

Cheilinus chlorurus (Bloch). PALAGSI, GADDAS

Two, 128 and 134 mm. July 4 and 16, 1923. Reaches 610 mm.

Cheilinus trilobatus (Lacépède). GA-DODAG, SAINA-N-DODAG

Two, 158 and 183 mm. July 16 and 19, 1923.

Novaculichthys kallosoma (Bleeker).

One, 58 mm.

Cymoleutes lecluse (Quoy and Gaimard). AAGA

Nine, 60 to 123 mm. July 6, 1923. Reaches 305 mm.

CALLYODONTIDAE

Scarichthys auritus (Valenciennes). PALAGSI

One, 185 mm. July 29, 1923. Reaches 457 mm.

Callyodon celebicus (Bleeker). MADGAHAM

One, 230 mm. July 8, 1923. Reaches 457 mm.

Callyodon gilberti (Jenkins). MADGAHAM

One, 215 mm. July 8, 1923. Reaches 457 mm.

Lips cover most of teeth. Canines 2—2 above, 1—1 below. Cheek with two rows of scales, none on preopercle flange. Caudal lunate, hind median edge convex as expanded.

According to color-sketch largely greenish-blue. Bright blue upper lip with line from rictus to lower eye border. Lower lip broadly blue and another broad blue band crosses chin still lower down. Caudal peduncle more deeply bluish. Dorsals and anals broadly blue marginally, former with broad median pale purplish longitudinal band. Anal largely purplish over greater basal portion. Caudal with median rays reddish, hind edge narrowly pale blue, upper and lower edges deep blue. Pectoral bluish basally, dull purplish terminally. Ventral with front edge blue, otherwise pale purple. Iris yellowish-gray.

Callyodon rubroviolaceus (Bleeker). PALAGSI

Two, 134 and 137 mm. July 3, 1923. Reaches 458 mm.

Callyodon hornbosteli new species. PALAGSI

Head 2 7/8; depth 2 7/8; D. IX, 10, 1; A. II, 9, 1; P. 1, 12; V. I, 5; scales 17 in upper section of lateral line, 4 in lower section to caudal base and 2 more on caudal base; 2 scales above lateral line, 6 below; 4 predorsal scales; snout 2 3/4 in head; eye 6 1/2; maxillary 5 1/8; interorbital 2 1/8.

Body compressed, elongate, apparently deepest midway in length. Caudal peduncle well compressed, least depth 4/5 its length which 2 1/5 in head.

Head moderate, compressed, width 2 1/5 in its length. Snout convex over surface and in profile, though latter with slight depression before eye, long as wide. Eye small, hind edge midway in head length; 2 1/2 in snout, 2 3/4 in interorbital. Mouth small, when closed short gape slopes forward. Maxillary extends not quite half way in snout, concealed. Lips broad, largely cover jaws. Canines $\frac{2 - 3}{0 - 0}$. Nostrils small, near together, front one about last third in snout. Interorbital convexly elevated.

Gill-opening extends forward opposite front eye edge. Gill-rakers 54, setiform, 4 1/4 in gill-filaments, which 2 1/6 in snout.

Scales with 31 to 45 radiating striae basally, 30 to 50 apically; circuli very fine. Cheek with two rows of scales, none on preopercle flange. Caudal with three large scales. Ventral axillary scale 2 1/2 in fin length. On trunk scales all well exposed, in even longitudinal series. Lateral line incomplete, tubes slender, each with but few slight prongs or branches.

Spinous dorsal begins opposite pectoral origin, spines pungent, or only tips slightly flexible; first spine 3 in head; first dorsal ray 3; first anal ray 3 1/8; pectoral 1 1/4, about reaches opposite vent; ventral 1 2/3 in head, reaches 1 1/2 to anal. Caudal emarginate, slightly convex behind as expanded, tips exserted; length 1 1/3 in eye.

Color in alcohol deep rose-purplish brown generally, scarcely paler below. Each scale with appearance of deep rosy-brown basal shade. Membranes of hind dorsal rays with some obscure small dark brown spots. First membrane of spinous dorsal black, especially basally. Iris golden-brown. Lips dark toward edges. Pectoral with slaty-dusky blotch at basal edge above.

Length 207 mm.

Type, No. 3410, Bishop Museum. Guam. July 28, 1923.

Only the type known, though Mr. Hornbostel's notes say the species reaches 305 mm. Related to *Callyodon brunneus* Jenkins, but differs from it in coloration, likewise from all the known species of the genus in the presence of a black spot on the front of the spinous dorsal. Named for Lieutenant Hans G. Hornbostel, who collected the type.

ELEOTRIDAE

Eleotris fusca (Schneider). ATUT
Seven, 112 to 152 mm. July 20 and 21, 1923.

GOBIIDAE

Amblygobius phalaena (Valenciennes). AAGA
Nine, 59 to 128 mm. July 19, 1923.

Bathygobius fuscus (Rüppell).
Three, 40 to 65 mm. July 19, 1923.

Gobiichthys papuensis (Valenciennes).
One, 92 mm.

Gobiodon citrinus (Rüppell).
Three, 30 to 36 mm. July 30, 1923. Four pale lines on side of head vertically and one across prepectoral base and parallel. Upper corner of opercle dusky. Vertical fins bright yellow basally, but without lines. Body pale yellowish-brown generally. No canines. Said to reach 51 mm.

Gobiodon ceramensis (Bleeker).
Two, 25 mm. July 30, 1923. Pair of lower canines present. Head and trunk brownish. Dorsals and anal dusky terminally.

Paragobiodon echinocephalus (Rüppell). AAGA
Seven, 15 to 23 mm. July 3, 1923. Found among coral.

Taenaeoides gertrudae new species. AAGA-RADSAU, ULU-UNAI

Head 7; depth 15 3/4; D. 59; A. 36; snout 4 in head measured from upper jaw tip; eye 4 3/5; maxillary 2 7/8; interorbital 4 3/5.

Body robust, moderately compressed, long, slender, trunk uniformly deep. Caudal peduncle well compressed, least depth 3 3/4 in total head length.

Head subcylindrical, width 2 3/4 in its length. Snout somewhat cavernous, conic, length 7/8 its width. Eye well developed, hind edge slightly before center in head length; diameter 1 1/4 in snout, equals interorbital. Mouth rather small, lower jaw strongly protruding and robust. Lips thin, and cover teeth. Maxillary little inclined, reaches opposite first third of eye. Teeth conic, slender, in bands in jaws, narrowing uniserial near rictus, outer row enlarged and recurved, especially in front of mandible. Tongue thick, round, fleshy knob. Interorbital slightly convex, about long as snout.

Gill-opening restricted, extends forward only about last fifth in head.

Body covered with minute, cycloid, firmly adherent scales.

Dorsal fin long, even, rather low, of simple flexible rays, last of which not joined to caudal by membrance and edge entire; third ray 2 3/4 in total head length. Anal origin midway between snout tip and caudal base; fifth ray 3 1/4 in head. Caudal small, ends in median point behind, 1 1/2 in head. Pectoral rounded, median ray longest, 2 1/5 in head. Ventrals small, together, though separate, inserted below pectoral base, four in head. Vent close before anal.

Color in alcohol with back light isabelle color, paler or more whitish on sides and beneath. Beginning on lower lip leaden-drab to dusky clean-cut narrow band,

less in width than pupil, extends along side of snout, through eye, thence midway along trunk to caudal base and slightly reflected on median caudal rays basally. Narrow dusky band from snout tip to dorsal origin. Dorsal whitish, with broad dusky-neutral margin. Anal and caudal whitish, latter brownish terminally. Paired fins pale.

Length 103 mm.

Type, No. 3411, Bishop Museum. Guam. July 13, 1923.

One, paratype, reserved for Academy of Natural Sciences of Philadelphia. Guam. July 26, 1923.

Differs from the known species in the dark median brown band and the median predorsal brown band. It also has increased dorsal rays. *Taenaeoides gracilis* Bleeker approaches, though without barbels and the dorsal and anal free from the tail.

Named for Mrs. Gertrude Hornbostel, in appreciation of her valuable color-sketches of Guam fishes.

CALLIONYMIDAE

Calliurichthys xanthosemeion new species. PEPUPU

Head to hind edge of opercle, 3 1/4; depth 8 1/4; D. IV—8; A. 7; P. 17; V. I, 5; snout 2 3/5 in head measured to hind opercle edge; eye 4 1/8; maxillary 2 1/2.

Body slender, well depressed, long, deepest at spinous dorsal origin. Caudal peduncle robust, becoming compressed behind, least depth 3 3/5 in its length or 5 in head.

Head well depressed, width which also greatest body width, 1 7/8 in head length. Snout depressed, rather narrowly triangular as seen from above, width 1 1/5 in its length. Eye large, superior, midway in head length; diameter 1 2/5 in snout. Mouth inferiorly terminal, lower jaw little shorter. Maxillary inferior, reaches eye. Teeth fine, in bands in jaws; last one above each side little larger and recurved; one or two enlarged and recurved on each side of mandible medianly. Nostrils small, at last fifth in snout. Interorbital narrow bony ridge. Preopercle spine long as eye, straight, with about eight antrorse serrae along upper edge; lower edge entire. Cranium finely rugose-striate, not covered with skin.

Gill-opening superior, about size of pupil.

Skin smooth, soft. Lateral line single, median along side.

Spinous dorsal begins opposite hind opercle edge; spines flexible and first 1 1/3 in head. Soft dorsal inserted slightly nearer snout tip than caudal base; first ray 1 1/2 in head, last nearly long as head. Anal begins opposite soft dorsal origin, first ray 2 2/3 in head, last 1 1/8. Caudal long, median rays longest, 2 1/6 in combined head and trunk. Pectoral 1 1/3 in head. Ventral nearly long as head, spine short and but little longer than preopercle spine.

Color of back ecru-drab, finely spotted or mottled with darker. About six darker short transverse bars on back. Side and lower surface pale to whitish, uniform below. Side of head with white splotches and short bars or lines. Neutral-black blotch below eye, less than its diameter, also with several white spots. Spinous dorsal ecru-drab, with small white and blackish spots, though terminally largely bright yellow. Soft dorsal transparent, with obscure brownish spots in each ray. Anal grayish, with scattered white spots. Caudal with upper half transparent and lower half whitish, with about eight transverse series of neutral-black rounded spots of

moderate size. Along side just below lateral line row of eight neutral-black round spots, with many small white spots scattered between and all along below.

Length 76 mm.

Type, No. 3412, Bishop Museum. Guam.

Two paratypes, same data, one retained in Academy of Natural Sciences of Philadelphia.

Related to *Callionymus simplicicornis* Valenciennes, but that species described with the spinous dorsal transparent with a black terminal band parallel to the edge.

(ξανθὸς, yellow; σημειὸν, banner; with reference to the spinous dorsal.)

BLENNIIDAE

Rupiscartes fasciatus (Bloch).

One, 68 mm. Two very small lower canines.

Rupiscartes poptae new species.

Head 4½; depth 6; D. XII, 18; A. II, 18; P. 16; V. 2; snout 4 in head; eye 4; mouth width 2 2/5.

Body elongate, slender, compressed. Caudal peduncle compressed, partly free, least depth 3 in head.

Head robust, width 1 1/2 in its length. Snout obtuse, convex, front profile rather steep, length 3/5 its width. Eye high, hind edge at first 2/5 in head; supraorbital filament 3/4 of eye. Mouth broad, lower jaw slightly inferior. Lips entire, thin. Teeth fine, flexible, in single series; single small canine each side below. Nostrils together, near last third in snout, without flap or filament. Interorbital narrow, bony, level. Slight median keel on top of head, very feeble. No occipital filament.

Gill-opening extends forward opposite first 2/5 in head. Gillrakers 2 + 11 feeble points, barely 1/5 of gill-filaments, which 1 2/3 in eye. Isthmus broadly convex, free branchiostegal membrane moderately broad.

Skin smooth. Lateral line inconspicuous, arched high along back at first, curves down and median close after depressed pectoral, thence to caudal base.

Dorsal begins above gill opening, spines flexible, last well separated by deep incision from soft dorsal; third spine 2 1/3 in head. Second dorsal ray 2 and last connected with caudal peduncle by membrane. Third anal ray 2 3/4 in head, fin edge deeply notched after each ray. Caudal rounded, median rays longest and form point, 1 1/8 in head. Pectoral with median rays longest, 1 1/10 in head. Ventral 1 1/2 in head.

Color in alcohol grayish above, becoming silvery-white below, with seven pairs of pale brown transverse bands on middle and lower sides. On back various obscure brown mottlings or blotches, from head to caudal base. Spinous dorsal largely dusky with median to submarginal longitudinal white band, also tip of each spine whitish. Soft dorsal pale, with rather sparse dark lines, little more inclined than rays and fewer posteriorly. Anal whitish. Caudal pale, with obscure or very faint transverse bar of darker on base. Pectoral and ventral pale, little soiled. Cheek and lower side of head with four rather broad pale gray vertical bars, each with border line of deep or dark gray. Iris gray.

Length 53 mm.

Type, No. 3413 Bishop Museum. Guam.

Only the type known. Distinguished from the numerous species in the genus chiefly by the presence of four broad pale vertical bands on the cheek.

Named for Dr. Canna M. L. Popta, of the Leiden Museum, in slight acknowledgment of her East Indian ichthyological studies.

Salarias edentulus (Schneider). MATSING, SALI
Three, 77 to 100 mm. July 18 and 29, 1923, and April, 1924.

Petroscirtes mitratus (Rüppell). ATUT
Two, 58 and 64 mm. July 11, 1923.

Cirripectes brevis (Kner). METSING-LAGO
Two, 125 and 135 mm. July 28, 1923. Reaches 152 mm.

FIERASFERIDAE

Fierasfer homei (Richardson). AAGA
Seven, 90 to 132 mm. July 26, 1923. Reaches 305 mm.

BALISTIDAE

Balistes flavimarginatus Rüppell.
Two, 86 and 96 mm.

Balistapus rectangulus (Schneider). POLONON-LAGO
Two, 43 and 163 mm. July 4 and 28, 1923. Reaches 610 mm.

Balistapus lineatus (Schneider). POLONON-SAISADDO
Two, 123 and 160 mm. July 5 and 23, 1923. Reaches 610 mm.

Balistapus aculeatus (Linné). POLONON
Six, 76 to 185 mm. June 30, 1923. Reaches 457 mm.

MONACANTHIDAE

Cantherines pardalis (Rüppell). POLONON-LAGO
One, 170 mm. July 26, 1923. Sides of caudal peduncle rough velvety.

Oxymonacanthus longirostris (Schneider). FAHA
Two, 66 to 70 mm. July 2, 1923. Reaches 305 mm.

CANTHIGASTERIDAE

Canthigaster cinctus (Richardson). BUTETE, PALUMETA
Two, 39 and 41 mm. July 18 and 23, 1923. Reaches 51 mm.

Canthigaster margaritatus (Rüppell). BUTETE, FAHA

Eight, 37 to 60 mm. July 6, 1923. Reaches 75 mm.

A color-sketch shows very pale bluish spots in the belly, now faded in my examples.

TETRODONTIDAE

Tetrodon hispidus Linné. BUTETE-N-MALULASA

Three, 50 to 140 mm. July 1, 1923. Reaches 457 mm.

Tetrodon immaculatus Schneider. BUTETE-N-MALULASA

Two, 252 and 275 mm. July 1, 1923. Reaches 457. Considered poisonous by the natives, but eaten by the Caroline Islanders if the poison sinew is removed.

Tetrodon stellatus Schneider.

One, 140 mm. Gunther has given a figure under *Tetrodon cinctus*[7] which agrees with my example. Instead of but two black lines as he shows, the lines indicate the others apparently faded out. My specimen has eight such bands, all more or less parallel along the side. Both the caudal and caudal peduncle are also spotted with black in my specimen.

Tetrodon nigropunctatus (Schneider). BUTETE, BUTETE-ATULONG

Two, 180 and 210 mm. July 26 and 28, 1923. Reaches 610 mm.

OSTRACIIDAE

Ostracion lentiginosus Schneider. DANGLUM

Two, 110 and 128 mm. July 28, 1923. Reaches 152 mm.

Ostracion sebae Bleeker. DANGLUM

One, 146 mm. July 28, 1923. Reaches 152 mm.

Ostracion cornutus Linné. DANGLUM, TORO

Seven, 60 to 225 mm. July 14, 1923.

Ostracion cubicus Linné. DANGLUM

One, 25 mm. July 18, 1923. Reaches 152 mm. Body pale brown, with scattered round blackish spots on carapace, rather more numerous on under surface forward.

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[7] Journal des Museum Godeffroy, Bd. VI, heft 17, p. 466, 1910.

DIODONTIDAE

Diodon hystrix Linné. BUTETE-I-TITUKE

One, 240 mm. July 14, 1923. Reaches 462 mm. Frontal spines 1 3/5 in post-pectoral spines. Body and fins spotted all over superiorly with neutral-dusky.

ANTENNARIIDAE

Antennarius commersonii (Shaw). NUFU

Four, 27 to 46 mm. July 3, 1923. All with bait reaching middle of second dorsal spine, filament extending little beyond.

FISHES OF HAWAII

The following species were sent to the Academy of Natural Sciences of Philadelphia in 1923 by Bernice P. Bishop Museum. Nearly all of them were obtained in the markets of Honolulu.

ELOPIDAE

Elops hawaiiensis Regan.

ALBULIDAE

Albula vulpes (Linné).

CHANIDAE

Chanos chanos (Forskål).

ENGRAULIDAE

Engraulis purpureus (Fowler).

SYNODONTIDAE

Trachinocephalus myops (Schneider).

Synodus japonicus (Houttuyn).

CONGRIDAE

Ariosoma bowersi (Jenkins).

MURAENIDAE

Lycodontis flavimarginata (Rüppell).

BELONIDAE

Strongylura indica (Le Sueur).

PLEURONECTIDAE

Platophrys pantherinus (Rüppell).

HOLOCENTRIDAE

Holotrachys lima (Valenciennes).

Ostichthys japonicus (Cuvier).

Myripristis murdjan (Forskål).

Holocentrus diadema Lacépède.

Holocentrus microstomus Günther.

Holocentrus lacteoguttatus Valenciennes.

Holocentrus sammara (Forskål).

FISTULARIIDAE

Fistularia petimba Lacépède.

SYNGNATHIDAE

Corythoichthys balli new species.

Head 7 1/3; depth about 16; D. 23; A. 2?; P. 12; rings 17 + 32; snout 2 1/2 in head measured from upper jaw tip; eye 5.

Body robust, keels all very slight. Dorsal keel of trunk interrupted opposite posterior part of dorsal fin, not continuous with dorsal keel of tail. Median lateral keel of trunk not continuous on tail and none present on latter. Lower keel of trunk continuous with that of tail. Back and upper surface of tail flattened.

Head compressed, level with axis of trunk, width 2¾ in its length. Snout slightly less than postocular part of head, upper profile deeply concave. Eye large, midway in head length, 2 in snout. Mouth subterminal, superior, oblique, small. Interorbital level. Opercle convex, with slight median anterior horizontal keel. Gill-opening small, superior. Rings with fine striae, not greatly developed. Opercle finely striate. Dorsal on 3 body and 4 caudal rings, fin moderate, rays subequally long. Caudal (damaged) apparently shorter than eye. Pectoral broad, rounded, slightly over half of snout.

Color in alcohol very pale brown, evidently greatly faded. Almost everywhere above head and trunk, with obscure brownish marblings. Down back and tail about 10 dusky narrow cross bars, less conspicuous on sides. Under surface of head posteriorly and each ring on belly with smutty-brown cross-band over its anterior portion at least, becoming paler posteriorly on trunk. Fins transparent.

Length 62 mm.

Type, No. 3414, Bishop Museum. Waikiki reef, Honolulu. March 13, 1924. C. H. Edmondson and S. C. Ball.

Closely related to *Corythoichthys mataafae* Jordan and Seale, but differs chiefly in the dorsal keel of the trunk not continuous with that of the tail, more dorsal rays and smutty barred color pattern of breast and belly. The type a male, with the abdominal brood pouch extending over the first twelve rings.

Named for Stanley C. Ball, of the Bishop Museum, in slight acknowledgment of his interest in the fishes of Oceania.

Hippocampus kuda Bleeker.

ATHERINIDAE

Hepsetia insularum (Jordan and Evermann).

MUGILIDAE

Mugil cephalus Linné.

POLYNEMIDAE

Polydactylus sexfilis (Valenciennes).

CARANGIDAE

Scomberoides sancti-petri (Cuvier).

Naucrates ductor (Lacépède).

Decapterus sanctae-helenae (Cuvier).

Caranx affinis Rüppell.

Caranx kuhli Bleeker.

Caranx sexfasciatus Quoy and Gaimard.

Caranx helvolus (Schneider).

Carangoides gymnostethoides Bleeker.

Gnathanodon speciosus (Forskål).

CHEILODIPTERIDAE

Amia frenata (Valenciennes).

SERRANIDAE

Caesoperca thompsoni Fowler.

Caprodon longimanus (Günther).

Odontanthias fuscipinnis (Jenkins).

Anthias kelloggi Jordan and Evermann.

PRIACANTHIDAE

Priacanthus boops (Schneider).
Priacanthus cruentatus (Lacépède).

EMMELICHTHYIDAE

Erythrocles scintillans Jordan and Thompson.

LUTJANIDAE

Apsilus zonatus (Valenciennes).
Pristipomoides sieboldii (Bleeker).
Etelis carbunculus Cuvier.
Etelis marshi Jenkins.
Aphareus furcatus (Lacépède).

SPARIDAE

Monotaxis grandoculis (Forskål).

KYPHOSIDAE

Kyphosus fuscus (Lacépède).

MULLIDAE

Mulloides auriflamma (Forskål).
Mulloides samoensis Günther.
Upeneus porphyreus (Jenkins).
Upeneus chryserydros (Lacépède).
Upeneus multifasciatus (Quoy and Gaimard).
Upeneus bifasciatus Lacépède.
Upeneus pleurostigma (Bennett).

MALACANTHIDAE

Malacanthus hoedtii Bleeker.

CHEILODACTYLIDAE

Cheilodactylus vittatus (Garrett).

CIRRHITIDAE

Cirrhitoidea bimacula Jenkins.
Paracirrhites forsteri (Schneider).
Paracirrhites arcatus (Cuvier).
Cirrhitus marmoratus (Lacépède).

CARACANTHIDAE

Caracanthus maculatus (Gray).

SCORPAENIDAE

Sebastapistes asperella (Bennett).
Merinthe macrocephala (Sauvage).
Scorpaenopsis gibbosa (Schneider).
Iracundus signifer Jordan and Evermann.
Taenianotus triacanthus Lacépède.
Brachirus chloreus (Jenkins).
Pterois sphex Jordan and Evermann.

CEPHALACANTHIDAE

Dactyloptena orientalis (Cuvier).

CAPROIDAE

Antigonia steindachneri Jordan and Evermann.

CHAETODONTIDAE

Forcipiger longirostris (Broussonet).
Chaetodon setifer Bloch.
Chaetodon lineolatus Cuvier.
Chaetodon lunula (Lacépède).
Chaetodon unimaculatus Bloch.
Chaetodon ornatissimus Cuvier.
Chaetodon punctatofasciatus Valenciennes.
Chaetodon fremblii Bennett.

Chaetodon trifasciatus Mungo Park.
Chaetodon miliaris Quoy and Gaimard.
Chaetodon quadrimaculatus Gray.
Chaetodon corallicola Snyder.
Microcanthus strigatus (Valenciennes).
Heniochus acuminatus (Linné).
Holacanthus arcuatus Gray.
Holacanthus potteri Jordan and Metz.

ZANCLIDAE

Zanclus canescens (Linné).

ACANTHURIDAE

Hepatus achilles (Shaw).
Hepatus olivaceus Schneider.
Hepatus leucopareius Jenkins.
Hepatus fuliginosus (Lesson).
Hepatus dussumieri (Valenciennes).
Hepatus lineolatus (Valenciennes).
Hepatus guttatus Schneider.
Hepatus sandvicensis (Streets).
Zebrasoma veliferum (Bloch).
Zebrasoma flavescens (Bennett).
Ctenochaetus strigosus (Bennett).
Acanthurus brevirostris (Valenciennes).
Acanthurus unicornis (Forskål).
Acanthurus lituratus Schneider.
Acanthurus tuberosus (Lacépède).

POMACENTRIDAE

Dascyllus trimaculatus (Rüppell).
Chromis ovalis (Steindachner).
Chromis melas (Valenciennes).
Pomacentrus jenkinsi Jordan and Evermann.

Abudefduf sordidus (Forskål).
Abudefduf abdominalis (Quoy and Gaimard).

LABRIDAE

Lepidaplois modestus (Garrett).
Stethojulis axillaris (Quoy and Gaimard).
Macropharyngodon geoffroy (Quoy and Gaimard).
Coris pulcherrima Günther.
Coris lepomis Jenkins.
Coris flavovittata (Bennett).
Coris ballieui Vaillant and Sauvage.
Coris rosea Vaillant and Sauvage.
Cheilio inermis Forskål.
Gomphosus tricolor Quoy and Gaimard.
Anampses cuvier Quoy and Gaimard.
Anampses godeffroy Günther.
Thalassoma purpureum (Forskål).
Thalassoma trilobata (Lacépède).
Thalassoma umbrostigma (Rüppell).
Thalassoma duperrey Quoy and Gaimard.
Thalassoma aneitense (Günther).
Cheilinus hexagonatus Günther.
Cheilinus bimaculatus Valenciennes.
Novaculichthys taeniourus (Lacépède).
Novaculichthys kallosoma (Bleeker).
Iniistius pavo (Valenciennes).
Cymoleutes lecluse (Quoy and Gaimard).

CALLYODONTIDAE

Leptoscarus irradians (Jenkins).
Leptoscarus sandvicensis (Valenciennes).
Scaridea zonarcha Jenkins.
Scaridea balia Jenkins.
Callyodon perspicillatus (Steindachner).
Callyodon borborus (Jordan and Evermann).

Callyodon brunneus Jenkins.
Callyodon dubius (Bennett).
Callyodon rubroviolaceus (Bleeker).
Callyodon bataviensis (Bleeker).
Callyodon erythrodon (Valenciennes).

ELEOTRIDAE

Eleotris fusca (Schneider).
Eviota epiphanes Jenkins.

GOBIIDAE

Chonophorus genivittatus (Valenciennes).

BLENNIIDAE

Rupiscartes gibbifrons (Quoy and Gaimard).
Enchelyurus ater (Günther).

BROTULIDAE

Brotula multibarbata Schlegel.

BALISTIDAE

Balistes vidua Richardson.
Balistes capistratus (Shaw).
Melichthys buniva (Lacépède).

MONACANTHIDAE

Cantherines sandwichensis (Quoy and Gaimard).
Monacanthus spilosomus Lay and Bennett.

TETRODONTIDAE

Tetrodon hispidus Linné.

OSTRACIIDAE

Ostracion lentiginosum Schneider.
Ostracion fornasini Bianconi.

ANTENNARIIDAE

Antennarius commersonii (Shaw).

FISHES OF SAMOA

Of the following, all in the collection of the Academy of Natural Sciences of Philadelphia, largely received from the United States Bureau of Fisheries, a set of duplicates has been sent to Bernice P. Bishop Museum.

ELOPIDAE

Megalops cyprinoides (Broussonet).

ANGUILLIDAE

Anguilla mauritiana Bennett.

MURAENIDAE

Echidna nebulosa (Ahl).
Echidna amblyodon (Bleeker).
Lycodontis undulata (Lacépède).
Lycodontis flavomarginata (Rüppell).
Uropterygius marmoratus (Lacépède).

PLOTOSIDAE

Plotosus anguillaris (Bloch).

HEMIRAMPHIDAE

Hemiramphus affinis Günther.

HOLOCENTRIDAE

Myripristis murdjan (Forskål).
Myripristis adustus Bleeker.
Myripristis intermedius Günther.
Myripristis microphthalmus Bleeker.
Myripristis multiradiatus Günther.
Holocentrus diadema Lacèpéde.
Holocentrus microstomus Günther.
Holocentrus tiere Cuvier.

Holocentrus lacteoguttatus Valenciennes.
Holocentrus caudimaculatus Rüppell.
Holocentrus spinifer (Forskål).
Holocentrus violescens Bleeker.
Holocentrus sammara (Forskål).
Holocentrus laevis Günther.

MUGILIDAE

Mugil trichilus Vaillant and Sauvage.
Mugil seheli Forskål.
Mugil engeli Bleeker.

CARANGIDAE

Scomberoides sancti-petri (Cuvier).
Megalaspis cordyla (Linné).
Selar crumenophthalmus (Bloch).
Caranx ascensionis (Osbeck).
Caranx sexfasciatus Quoy and Gaimard.

CHEILODIPTERIDAE

Apogonichthys variegatus (Valenciennes).
Amia savayensis (Günther).
Archamia lineolata (Cuvier).
Cheilodipterus quinquelineatus Cuvier.

AMBASSIDAE

Ambassis lafa Jordan and Seale.
Ambassis vaivasensis Jordan and Seale.

KUHLIIDAE

Kuhlia rupestris (Lacèpéde).
Kuhlia marginata (Cuvier).

PEMPHERIDAE

Pempheris oualensis Cuvier.

SCORPIDIDAE

Monodactylus argenteus (Linné).

SERRANIDAE

Variola louti (Forskål).
Cephalopholis argus Schneider.
Epinephelus merra Bloch.
Pharopteryx nigricans Rüppell.

LUTJANIIDAE

Lutjanus marginatus (Cuvier).
Lutjanus gibbus (Forskål).

HAEMULIDAE

Scolopsis trilineatus Kner.

SPARIDAE

Lethrinus harak (Forskål).

LEIOGNATHIDAE

Leiognathus fasciatus (Lacépède).

MULLIDAE

Mulloides samoensis Günther.
Upeneus indicus (Shaw).
Upeneus bifasciatus (Lacépède).

SCORPAENIDAE

Sebastopsis guamensis (Quoy and Gaimard).
Sebastopsis scabra (Ramsay and Ogilby).
Synanceja verrucosa Schneider.

CHAETODONTIDAE

Chaetodon setifer Bloch.
Chaetodon lunula (Lacépède).
Chaetodon vagabundus Linné.

Chaetodon unimaculatus Bloch.
Chaetodon ornatissimus Cuvier.
Chaetodon ephippium Cuvier.
Chaetodon citrinellus Valenciennes.
Chaetodon trifasciatus Mungo Park.
Chaetodon miliaris Quoy and Gaimard.
Chaetodon collaris Bloch.
Holacanthus bicolor (Bloch).
Holacanthus diacanthus (Boddaert).
Holacanthus flavissimus Cuvier.

ZANCLIDAE

Zanclus canescens (Linnaeus).

ACANTHURIDAE

Hepatus lineatus (Linné).
Hepatus lineolatus (Valenciennes).
Hepatus guttatus (Schneider).
Hepatus triostegus (Linné).
Zebrasoma flavescens (Bennett).
Zebrasoma rhombeum (Kittlitz).
Ctenochaetus strigosus (Bennett).
Acanthurus lituratus Schneider.

SIGANIDAE

Siganus rostratus (Valenciennes).

POMACENTRIDAE

Dascyllus aruanus (Linné).
Chromis caeruleus (Cuvier).
Chromis analis (Cuvier).
Pomacentrus pavo (Bloch).
Pomacentrus nigricans (Lacépède).
Pomacentrus albofasciatus (Schlegel).
Pomacentrus lividus (Schneider)
Abudefduf coelestinus (Cuvier).
Abudefduf glaucus (Cuvier).

Abudefduf zonatus (Cuvier).
Abudefduf amabilis (De Vis).
Abudefduf antjerinus (Cuvier).
Abudefduf leucopomus (Cuvier).
Abudefduf uniocellatus (Quoy and Gaimard).

LABRIDAE

Epibulus insidiator (Pallas).
Hemigymnus melapterus (Bloch).
Stethojulis phekadopleura Bleeker.
Stethojulis axillaris (Quoy and Gaimard).
Stethojulis bandanensis (Bleeker).
Platyglossus notopsis (Valenciennes).
Halichoeres trimaculatus (Quoy and Gaimard).
Halichoeres nebulosus (Valenciennes).
Halichoeres opercularis (Günther).
Thalassoma hardwicke (Bennett).
Cheilinus trilobatus Lacépède.
Cheilinus fasciatus (Bloch).
Cheilinus chlorurus (Bloch).
Pseudocheilinus hexataenia (Bleeker).
Novaculichthys taeniourus (Lacépède).

CALLYODONTIDAE

Callyodon oviceps (Valenciennes).
Callyodon caudofasciatus (Günther).
Callyodon dubius (Bennett).
Callyodon globiceps (Valenciennes).
Callyodon erythrodon (Valenciennes).
Callyodon troscheli (Bleeker).
Callyodon frenatus (Lacépède).
Pseudoscarus forsteri (Valenciennes).

ELEOTRIDAE

Eleotris fusca (Schneider).
Crassiops cyprinoides (Valenciennes).
Eviota zonura Jordan and Seale.

GOBIIDAE

Periophthalmus koelreuteri (Pallas).
Gobiodon citrinus (Rüppell).
Paragobiodon echinocephalus (Rüppell).

BLENNIIDAE

Rupiscartes caudolineatus (Gunther).
Salarias biseriatus Valenciennes.
Salarias fasciatus (Bloch).
Salarias edentulus (Schneider).
Salarias periophthalmus Valenciennes.
Enchelyurus ater (Günther).

ECHENEIIDAE

Leptecheneis naucrates (Linné).

BALISTIDAE

Balistapus aculeatus (Linné).
Balistapus undulatus (Mungo Park).

MONACANTHIDAE

Oxymonacanthus longirostris (Schneider).

CANTHIGASTERIDAE

Canthigaster margaritatus (Rüppell).

TETRODONTIDAE

Tetrodon unimaculatus Schneider.
Tetrodon nigropunctatus Schneider.
Tetrodon meleagris Schneider.

OSTRACIIDAE

Ostracion lentiginosus Schneider.

FISHES OF TAHITI

A few species of Tahitian fishes are in the collections of the Academy of Natural Sciences of Philadelphia. Duplicates of these have been sent to Bernice P. Bishop Museum.

CLUPEIDAE

Sardinella melanura (Cuvier).

HOLOCENTRIDAE

Holocentrus lacteoguttatus Valenciennes.
Holocentrus tiere Cuvier.

SYNGNATHIDAE

Doryrhamphinarum brachyurum (Bleeker).

KUHLIIDAE

Kuhlia rupestris (Lacépède).
Kuhlia marginata (Cuvier).

PSEUDOCHROMIDIDAE

Pseudograma polyacantha (Bleeker).

MULLIDAE

Upeneoides vittatus (Forskål).
Upeneus multifasciatus (Quoy and Gaimard).
Upeneus pleurospilos Bleeker.

CARACANTHIDAE

Caracanthus maculatus (Gray).

SCORPAENIDAE

Sebastopsis guamensis (Quoy and Gaimard).
Pterois radiata Cuvier.

POMACENTRIDAE

Dascyllus aruanus (Linné).

LABRIDAE

Pseudocheilinus hexataenia (Bleeker).

ELEOTRIDAE

Eleotris fusca (Schneider).

GOBIIDAE

Bathygobius fuscus (Rüppell).

BLENNIIDAE

Salarias edentulus (Schneider).

CARAPIDAE

Carapus homei (Richardson).
Jordanicus parvipinnis (Kaup).